BioMap and Living Waters

Guiding Land Conservation for Biodiversity in Massachusetts

Core Habitats of Conway

This report and associated map provide information about important sites for biodiversity conservation in your area.

This information is intended for conservation planning, and is not intended for use in state regulations.

Produced by:

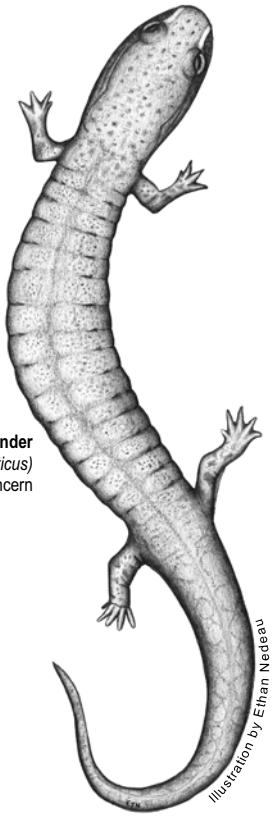
Natural Heritage & Endangered Species Program
Massachusetts Division of Fisheries and Wildlife
Executive Office of Environmental Affairs
Commonwealth of Massachusetts

Produced in 2004

BioMap and Living Waters:
Guiding Land Conservation for Biodiversity in Massachusetts

Table of Contents

* Depending on the location of Core Habitats, your city or town may not have all of these sections.



Spring Salamander
(Gyrinophilus porphyriticus)
Species of Special Concern

Funding for this project was made available by the Executive Office of Environmental Affairs, contributions to the Natural Heritage & Endangered Species Fund, and through the State Wildlife Grants Program of the US Fish & Wildlife Service.

Natural Heritage & Endangered Species Program

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For more information on rare species and natural communities, please see our fact sheets online at ***www.nhesp.org***

BioMap and Living Waters:
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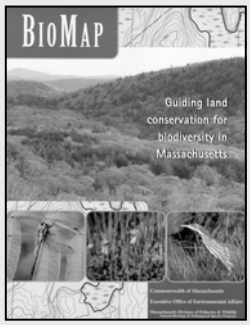
Introduction

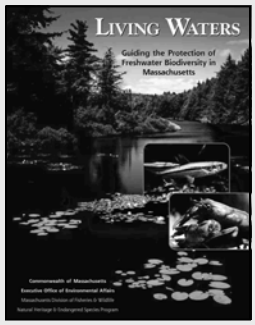
In this report, the Natural Heritage & Endangered Species Program provides you with site-specific biodiversity information for your area. Protecting our biodiversity today will help ensure the full variety of species and natural communities that comprise our native flora and fauna will persist for generatons to come.

The information in this report is the result of two statewide biodiversity conservation planning projects, ***BioMap*** and ***Living Waters***. The goal of the BioMap project, completed in 2001, was to identify and delineate the most important areas for the long-term viability of terrestrial, wetland, and estuarine elements of biodiversity in Massachusetts. The goal of the Living Waters project, completed in 2003, was to identify and delineate the rivers, streams, lakes, and ponds that are important for freshwater biodiversity in the Commonwealth. These two conservation plans are based on documented observations of rare species, natural communities, and exemplary habitats.

What is a Core Habitat?

Both BioMap and Living Waters delineate ***Core Habitats*** that identify the most critical sites for biodiversity conservation across the state. Core Habitats represent habitat for the state's most viable rare plant and animal populations and include exemplary natural communities and aquatic habitats. Core Habitats represent a wide diversity of rare species and natural communities (see Table 1), and these areas are also thought to contain virtually all of the other described species in Massachusetts. Statewide, BioMap Core Habitats encompass 1,380,000 acres of uplands and wetlands, and Living Waters identifies 429 Core Habitats in rivers, streams, lakes, and ponds.





Get your copy of the ***BioMap*** and ***Living Waters*** reports! Contact Natural Heritage at 508-792-7270, Ext. 200 or email natural.heritage@state.ma.us. Posters and detailed technical reports are also available.

Core Habitats and Land Conservation

One of the most effective ways to protect biodiversity for future generations is to protect Core Habitats from adverse human impacts through land conservation. For Living Waters Core Habitats, protection efforts should focus on the ***riparian areas***, the areas of land adjacent to water bodies. A naturally vegetated buffer that extends 330 feet (100 meters) from the water's edge helps to maintain cooler water temperature and to maintain the nutrients, energy, and natural flow of water needed by freshwater species.

In Support of Core Habitats

To further ensure the protection of Core Habitats and Massachusetts' biodiversity in the long-term, the BioMap and Living Waters projects identify two additional areas that help support Core Habitats.

In BioMap, areas shown as ***Supporting Natural Landscape*** provide buffers around the Core Habitats, connectivity between Core Habitats, sufficient space for ecosystems to function, and contiguous undeveloped habitat for common species. Supporting Natural Landscape was

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generated using a Geographic Information Systems (GIS) model, and its exact boundaries are less important than the general areas that it identifies. Supporting Natural Landscape represents potential land protection priorities once Core Habitat protection has been addressed.

In Living Waters, ***Critical Supporting Watersheds*** highlight the immediate portion of the watershed that sustains, or possibly degrades, each freshwater Core Habitat. These areas were also identified using a GIS model. Critical Supporting Watersheds represent developed and undeveloped lands, and can be quite large. Critical Supporting Watersheds can be helpful in land-use planning, and while they are not shown on these maps, they can be viewed in the Living Waters report or downloaded from www.mass.gov/mgis.

Understanding Core Habitat Species, Community, and Habitat Lists

What's in the List?

Included in this report is a list of the species, natural communities, and/or aquatic habitats for each Core Habitat in your city or town. The lists are organized by Core Habitat number.

For the larger Core Habitats that span more than one town, the species and community lists refer to the entire Core Habitat, not just the portion that falls within your city or town. For a list of all the state-listed rare species within your city or town's boundary, whether or not they are in Core Habitat, please see the town rare species lists available at www.nhesp.org.

The list of species and communities within a Core Habitat contains only the species and natural communities that were explicitly included in a given BioMap or Living Waters Core Habitat. Other rare species or examples of other natural communities may fall within the Core Habitat, but for various reasons are not included in the list. For instance, there are a few rare species that are omitted from the list or summary because of their particular sensitivity to the threat of collection. Likewise, the content of many very small Core Habitats are not described in this report or list, often because they contain a single location of a rare plant

Table 1. The number of rare species and types of natural communities explicitly included in the BioMap and Living Waters conservation plans, relative to the total number of native species statewide.

BioMap

	Species and Verified Natural Community Types	
Biodiversity Group	**Included in BioMap**	**Total Statewide**
Vascular Plants	246	1,538
Birds	21	221 breeding species
Reptiles	11	25
Amphibians	6	21
Mammals	4	85
Moths and Butterflies	52	An estimated 2,500 to 3,000
Damselflies and Dragonflies	25	An estimated 165
Beetles	10	An estimated 2,500 to 4,000
Natural Communities	92	> 105 community types

Living Waters

	Species	
Biodiversity Group	**Included in Living Waters**	**Total Statewide**
Aquatic Vascular Plants	23	114
Fishes	11	57
Mussels	7	12
Aquatic Invertebrates	23	An estimated > 2500

species. Some Core Habitats were created for suites of common species, such as forest birds, which are particularly threatened by habitat fragmentation. In these cases, the individual common species are not listed.

What does 'Status' mean?

The Division of Fisheries and Wildlife determines a status category for each rare species listed under the Massachusetts Endangered Species Act, M.G.L. c.131A, and its implementing regulations, 321 CMR 10.00. Rare species are categorized as Endangered, Threatened, or of Special Concern according to the following:

- ***Endangered*** species are in danger of extinction throughout all or a significant portion of their range or are in danger of extirpation from Massachusetts.
- ***Threatened*** species are likely to become Endangered in Massachusetts in the foreseeable future throughout all or a significant portion of their range.
- ***Special Concern*** species have suffered a decline that could threaten the species if allowed to continue unchecked or occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become Threatened in Massachusetts.

In addition, the Natural Heritage & Endangered Species Program maintains an unofficial ***watch list*** of plants that are tracked due to potential conservation interest or concern, but are not regulated under the Massachusetts Endangered Species Act or other laws or regulations. Likewise, described natural communities are not regulated any laws or regulations, but they can help to identify ecologically important areas that are worthy of protection. The status of natural communities reflects the documented number and acreages of each community type in the state:

- ***Critically Imperiled*** communities typically have 5 or fewer documented sites or have very few remaining acres in the state.
- ***Imperiled*** communities typically have 6-20 sites or few remaining acres in the state.
- ***Vulnerable*** communities typically have 21-100 sites or limited acreage across the state.
- ***Secure*** communities typically have over 100 sites or abundant acreage across the state; however excellent examples are identified as Core Habitat to ensure continued protection.

Legal Protection of Biodiversity

BioMap and Living Waters present a powerful vision of what Massachusetts would look like with full protection of the land that supports most of our biodiversity. To create this vision, some populations of state-listed rare species were deemed more likely to survive over the long-term than others.

Regardless of their potential viability, all sites of state-listed species have full legal protection under the Massachusetts Endangered Species Act (M.G.L. c.131A) and its implementing regulations (321 CMR 10.00). Habitat of state-listed wildlife is also protected under the Wetlands Protection Act Regulations (310 CMR 10.37 and 10.59). The ***Massachusetts Natural Heritage Atlas*** shows **Priority Habitats**, which are used for regulation under the Massachusetts Endangered Species Act and Massachusetts Environmental Policy Act (M.G.L. c.30) and **Estimated Habitats**, which are used for regulation of rare wildlife habitat under the Wetlands Protection Act. For more information on rare species regulations, see the *Massachusetts Natural Heritage Atlas*, available from the Natural Heritage & Endangered Species Program in book and CD formats.

BioMap and Living Waters are conservation planning tools and do not, in any way, supplant the Estimated and Priority Habitat Maps which have regulatory significance. Unless and until the combined BioMap and Living Waters vision is fully realized, we must continue to protect all populations of our state-listed species and their habitats through environmental regulation.

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Understanding Core Habitat Summaries

Following the BioMap and Living Waters Core Habitat species and community lists, there is a descriptive summary of each Core Habitat that occurs in your city or town. This summary highlights some of the outstanding characteristics of each Core Habitat, and will help you learn more about your city or town's biodiversity. You can find out more information about many of these species and natural communities by looking at specific ***fact sheets*** at www.nhesp.org.

Next Steps

BioMap and Living Waters were created in part to help cities and towns prioritize their land protection efforts. While there are many reasons to conserve land – drinking water protection, recreation, agriculture, aesthetics, and others – BioMap and Living Waters Core Habitats are especially helpful to municipalities seeking to protect the rare species, natural communities, and overall biodiversity within their boundaries. Please use this report and map along with the rare species and community fact sheets to appreciate and understand the biological treasures in your city or town.

Protecting Larger Core Habitats

Core Habitats vary considerably in size. For example, the average BioMap Core Habitat is 800 acres, but Core Habitats can range from less than 10 acres to greater than 100,000 acres. These larger areas reflect the amount of land needed by some animal species for breeding, feeding, nesting, overwintering, and long-term survival. Protecting areas of this size can be very challenging, and requires developing partnerships with neighboring towns.

Prioritizing the protection of certain areas within larger Core Habitats can be accomplished through further consultation with Natural Heritage Program biologists, and through additional field research to identify the most important areas of the Core Habitat.

Additional Information

If you have any questions about this report, or if you need help protecting land for biodiversity in your community, the Natural Heritage & Endangered Species Program staff looks forward to working with you.

Contact the Natural Heritage & Endangered Species Program:

by Phone *508-792-7270, Ext. 200*

by Fax: *508-792-7821*

by Email: *natural.heritage@state.ma.us*.

by Mail: *North Drive*
Westborough, MA 01581

The GIS datalayers of BioMap and Living Waters Core Habitats are available for download from MassGIS: www.mass.gov/mgis

Check out www.nhesp.org for information on:

- Rare species in your town
- Rare species fact sheets
- BioMap and Living Waters projects
- Natural Heritage publications, including:
  - Field guides
  - Natural Heritage Atlas, and more!

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BioMap: Species and Natural Communities

Conway

Core Habitat BM477

Natural Communities

Common Name	Scientific Name	Status
Rich, Mesic Forest Community		Vulnerable

Core Habitat BM483

Natural Communities

Common Name	Scientific Name	Status
Rich, Mesic Forest Community		Vulnerable

Core Habitat BM490

Natural Communities

Common Name	Scientific Name	Status
High-Energy Riverbank		Vulnerable
Major-River Floodplain Forest		Imperiled
Rich, Mesic Forest Community		Vulnerable

Plants

Common Name	Scientific Name	Status
Dwarf Scouring-Rush	*Equisetum scirpoides*	Special Concern
Giant St. John's-Wort	*Hypericum ascyron*	Endangered
Green Dragon	*Arisaema dracontium*	Threatened
Hitchcock's Sedge	*Carex hitchcockiana*	Special Concern
Many-Fruited False-Loosestrife	*Ludwigia polycarpa*	Endangered
Mountain Alder	*Alnus viridis ssp crispa*	Threatened
Sensitive Rare Plant		
Spiked False Oats	*Trisetum triflorum ssp molle*	Endangered

Vertebrates

Common Name	Scientific Name	Status
Wood Turtle	*Clemmys insculpta*	Special Concern

Core Habitat BM562

Natural Communities

Common Name	Scientific Name	Status
Rich, Mesic Forest Community		Vulnerable

Invertebrates

Common Name	Scientific Name	Status
Beaver Pond Clubtail	*Gomphus borealis*	Special Concern

Core Habitat BM593

Natural Communities

Common Name	Scientific Name	Status
Rich, Mesic Forest Community		Vulnerable

Plants

Common Name	Scientific Name	Status
Small Site for Rare Plant		

Core Habitat BM596

Invertebrates

Common Name	Scientific Name	Status
Skillet Clubtail	*Gomphus ventricosus*	Special Concern

Core Habitat BM602

Plants

Common Name	Scientific Name	Status
Small Site for Rare Plant		

BioMap: Species and Natural Communities

Conway

Core Habitat BM651

Vertebrates

Common Name	Scientific Name	Status
Jefferson Salamander	*Ambystoma jeffersonianum*	Special Concern
Spring Salamander	*Gyrinophilus porphyriticus*	Special Concern

BioMap: Core Habitat Summaries

Conway

Core Habitat BM477

Natural Communities

This Core Habitat contains a small example of a Rich, Mesic Forest community. Rich, Mesic Forests are a variant of northern hardwood forests dominated by Sugar Maple with a diverse herbaceous layer and many spring ephemerals, unusual plants that appear only in spring, in a moist, nutrient-rich environment. Here the natural community is on the edge of an extensive tract of forested land that includes another patch of Rich, Mesic Forest, and is only minimally disturbed by invasive exotic species.

Core Habitat BM483

Natural Communities

This Core Habitat contains a small Rich, Mesic Forest of good quality. Rich, Mesic Forests are a variant of northern hardwood forests dominated by Sugar Maple with a diverse herbaceous layer and many spring ephemerals, unusual plants that appear only in spring, in a moist, nutrient-rich environment. The community here is free of exotic invasive species and embedded within over 2000 acres of naturally vegetated land with other patches of Rich, Mesic Forest.

Core Habitat BM490

Along the lower Deerfield River, this Core Habitat encompasses many riverine communities, including several large areas of Major-River Floodplain Forest. Here riverside and upland habitats support Wood Turtles and a diversity of rare plant species, such as the unusual Green Dragon.

Natural Communities

This Core Habitat contains the many sections of Major-River Floodplain Forest occurring along the Deerfield River. Major-River Floodplain Forests are dominated by Silver Maple. This community type is found along the floodplains of large rivers. The soils are enriched with nutrients brought by annual floods, resulting in a diversity of plants and insects. This Core Habitat includes a very large, high-quality example of a Major-River Floodplain Forest that is free of exotic species and human disturbances. The presence of several such communities near each other enhances the habitat value of each. Associated communities along this river include High-Energy Riverbank and Riverside Rock Outcrop community types.

Plants

Several rare plant species adapted to riparian habitats are found growing within this long Core Habitat along the Deerfield River. For example, several populations of the Mountain Alder grow in open areas of rocky substrate along the river, while populations of Green Dragon are found areas of floodplain forest. One of only four Massachusetts populations of Spiked False Oats is found here within a Riverside Rock Outcrop Community.

Vertebrates

The meandering lower Deerfield River, with abundant islands and adjacent oxbow wetlands, fields, and upland forests, provides habitat for Wood Turtles. Most of the area is currently unprotected and conservation efforts aimed at preserving a viable population of Wood Turtles here should seek to protect unbroken riparian corridors that are at least 600 yards wide where possible.

Core Habitat BM562

This Core Habitat contains a section of the Swift River and its adjacent uplands. This area provides key habitat for the Beaver Pond Clubtail dragonfly, and it encompasses an area of good-quality Rich, Mesic Forest that provides moist woodland habitat for springtime plants.

Natural Communities

This Core Habitat contains a well-buffered Rich, Mesic Forest. Rich, Mesic Forests are a variant of northern hardwood forests dominated by Sugar Maple with a diverse herbaceous layer and many spring ephemerals, unusual plants that appear only in spring, in a moist, nutrient-rich environment. Here the mature forest is free of invasive exotic species and is of good quality.

Invertebrates

This Core Habitat includes a 2-km stretch of the Swift River and associated wetlands and uplands that are important habitat for the Beaver Pond Clubtail dragonfly. The surrounding landscape is forested and for the most part unfragmented, which protects the waterways from pollution. Except for a small area within the Poland Brook Wildlife Management Area, most of the Beaver Pond Clubtail's habitat here appears to be unprotected.

Core Habitat BM593

Natural Communities

This Core Habitat contains a moderate-sized Rich, Mesic Forest. Rich, Mesic Forests are a variant of northern hardwood forests dominated by Sugar Maple with a diverse herbaceous layer and many spring ephemerals, unusual plants that appear only in spring, in a moist, nutrient-rich environment. Although this woods is poorly buffered and has a long history of logging, it is relatively free of invasive exotic species.

Core Habitat BM596

Invertebrates

This Core Habitat includes a 2-km stretch of the Mill River and associated uplands that are habitat for the Skillet Clubtail dragonfly. The surrounding landscape is forested and for the most part unfragmented, which protects the river from pollution. This Core Habitat is less than 7 km from other habitat for the Skillet Clubtail along the Connecticut River, which probably allows for dispersal of Skillet Clubtails between these two locations. This Core Habitat appears to be unprotected.

BioMap: Core Habitat Summaries

Conway

Core Habitat BM651

Vertebrates

This Core Habitat contains hilly hardwood and mixed forests with scattered vernal pools that support populations of Jefferson Salamanders. It extends south from the southern portions of Conway State Forest in Williamsburg and Whately, and includes High Ridge, Dry Hill, Walnut Hill, and Carey Hill. It also includes over seven miles of brooks that likely support populations of Spring Salamanders. This is a largely roadless area, most of which is currently unprotected.

Living Waters: Species and Habitats

Conway

Core Habitat LW061

Fishes

Common Name	Scientific Name	Status
Longnose Sucker	*Catostomus catostomus*	Special Concern

Core Habitat LW117

Fishes

Common Name	Scientific Name	Status
Longnose Sucker	*Catostomus catostomus*	Special Concern

Core Habitat LW403

Exemplary Habitats

Common Name	Scientific Name	Status
Invertebrate Habitat		----------

Core Habitat LW407

Exemplary Habitats

Common Name	Scientific Name	Status
Invertebrate Habitat		----------

Core Habitat LW408

Exemplary Habitats

Common Name	Scientific Name	Status
Invertebrate Habitat		----------

Core Habitat LW409

Exemplary Habitats

Common Name	Scientific Name	Status
Invertebrate Habitat		----------

Living Waters: Core Habitat Summaries

Conway

Core Habitat LW061

This Core Habitat in Poland Brook and its tributaries supports the Longnose Sucker, a fish Species of Special Concern. This species is restricted to the western watersheds of Massachusetts, where it is found in cold, clean, oxygen-rich streams with gravel bottoms. The Longnose Sucker sometimes migrates many miles to reach its spawning grounds. The eggs are released over the gravel bottom, making them susceptible to excess sedimentation, flow alterations, and increases in water temperature. These habitat degradations can be particularly detrimental to the reproductive success of this slow-growing fish that does not reach maturity until 5 to 7 years of age. Protecting the riparian areas adjacent to this Core Habitat will help maintain the cool, clean freshwater habitat of the Longnose Sucker.

Core Habitat LW117

This Core Habitat in the South River and its tributaries supports the Longnose Sucker, a fish Species of Special Concern. This species is restricted to the western watersheds of Massachusetts, where it is found in cold, clean, oxygen-rich streams with gravel bottoms. The Longnose Sucker sometimes migrates many miles to reach its spawning grounds. The eggs are released over the gravel bottom, making them susceptible to excess sedimentation, flow alterations, and increases in water temperature. These habitat degradations can be particularly detrimental to the reproductive success of this slow-growing fish that does not reach maturity until 5 to 7 years of age. Protecting the riparian areas adjacent to this Core Habitat will help maintain the cool, clean freshwater habitat of the Longnose Sucker.

Core Habitat LW403

Roaring Brook supports a healthy community of the more ecologically sensitive aquatic insects: mayflies, stoneflies, and caddisflies. The presence of this invertebrate community indicates the stream habitats here are relatively free of the impacts of development. Naturally vegetated stream banks along the Core Habitat and upstream help maintain the habitat quality, shading the water to keep it cool and controlling the runoff of sediments, excess nutrients, and water.

Core Habitat LW407

The Bear River supports a community of the more ecologically sensitive aquatic insects: mayflies, stoneflies, and caddisflies. The presence of this invertebrate community indicates the stream habitats here are relatively free of the impacts of nearby development and agriculture. Naturally vegetated stream banks along the Core Habitat and upstream help maintain the habitat quality, shading the water to keep it cool and controlling the runoff of sediments, excess nutrients, and water.

Core Habitat LW408

Drakes Brook supports a community of the more ecologically sensitive aquatic insects: mayflies, stoneflies, and caddisflies. The presence of this invertebrate community indicates the stream habitats here are relatively free of the impacts of nearby development and agriculture. Naturally vegetated stream banks along the Core Habitat and upstream help maintain the

habitat quality, shading the water to keep it cool and controlling the runoff of sediments, excess nutrients, and water.

Core Habitat LW409

The Bear River supports a community of the more ecologically sensitive aquatic insects: mayflies, stoneflies, and caddisflies. The presence of this invertebrate community indicates the stream habitats here are relatively free of the impacts of nearby development and agriculture. Naturally vegetated stream banks along the Core Habitat and upstream help maintain the habitat quality, shading the water to keep it cool and controlling the runoff of sediments, excess nutrients, and water.

Help Save Endangered Wildlife!

Please contribute on your Massachusetts income tax form or directly to the

Natural Heritage &
Endangered Species Fund

To learn more about the Natural Heritage & Endangered Species Program and the Commonwealth's rare species, visit our web site at: www.nhesp.org.